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| EXAMINER |
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ZHE, MENG YAO

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| ART UNIT | PAPER NUMBER |
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2109

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 02/05/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/612,826

Applicant(s)

NASH ET AL.

Examiner

MengYao Zhe

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 to 15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

This is the initial Office action based on the 10/612826 application filed on July 1, 2003.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 to 10 and claims 14 to 15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory matter.

As per **claim 1**, the examiner notes that it is a method claim that amounts merely to an abstract idea, one of the judicial exceptions. As of result the entire process as claimed in 1 has to be a practical application of the judicial exception and has to produce either a physical transformation or a useful, concrete, and tangible result.

Physical transformation is not produced for claim 1.

Tangible result is also not produced for claim 1 because the entire process merely results in the timer to be set for a time out. The timer is neither set for a time out nor is presently on time out, it is merely waiting for the action, setting, to be performed on it so that it can time out in the future. Furthermore, the mere act of providing a timer, a series of events, and a table, does not result in a tangible result. Those objects are simply provided, but they are not capable of performing or initiating any action. Hence, there is no real world result.

Similarly **claims 1 to 6** are rejected.

Claim 7 is rejected because it is a system claim and it claims for an operating system, which is software that is neither a machine nor a manufacture and thus not one of the statutory categories of invention. Furthermore, the claim is a judicial exception, specifically an abstract idea, and thus one of the judicial exceptions also lacking the tangible result as discussed above.

Similarly, **claims 8 to 10** and **claims 14 and 15** are rejected.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Both claims mention upon executing of the ISR, using an enable time in the table, the enable time causing disablement of an ISR after execution; and enablement of the ISR upon expiration of the enable time.

It is unclear to the Examiner what the said enable time in the table is suppose to do for said ISR. The applicant claims that the said enable time is to cause both the disablement and enablement of said ISR. As it is impossible for said enable time to

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perform the functions of both, claims 10 and 13 are indefinite, and are therefore rejected.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 to 11 are rejected under 35 U.S.C. 102(b) as being anticipated by May et al. (hereafter May), U.S. Patent 4,989,133.

As per **claim 1**, May teaches a method for scheduling execution of one or more processes in a computer, comprising the steps of:

providing a timer (*Figure 1, 9*);

providing a series of events for each process of a preselected set of processes, the events comprising a start time for each process (*the start time for each process is stored in the time ordered list or timer list; column 1, lines 58 to 65*);

starting execution of each process based on a time out of the timer, each process starting execution according to the corresponding start time (*the examiner notes that the specification of May does not state this limitation*

word for word. However, the Examiner has interpreted the phrase time out of the timer as any type of event that act as an indicator at a specific time or after a selected time interval. The specification of May discloses a system with a Timer Request signal that causes the processor to remove a process from the top of a timer list so that it becomes ready for execution, column 8, lines 59 to 61. And it does so when VALID TIME FLAG, which is a 1 bit register that is set to 1 if there are any processes on the timer list of appropriate priority, the table of registers in column 7, lines 54 to 56, is set to the value 1 and the time indicated by the CLOCK REG must either be after or equal to the time indicated by the NEXT TIME REG, column 8, lines 65 to 68. Therefore, upon the occurrence of these two events, they act as an indicator at a specific time. This then, is taken to mean time out of the timer.);

providing a table; storing each event in the table *(this table of events is the equivalent of the time ordered list or the timer list; column 1, lines 58 to 65);*

operating the timer to be set for a time out at each of a series of reload values, each reload value being equal to a number of time increments until a next event in the table *(the examiner notes that the specification of May does not state this limitation word for word. However, the specification of May discloses a timer control so that processes may be executed in dependence on timer data and timer lists of processes awaiting specified times before execution may be formed, line 67 of column 4 to line 2 of column 5. Moreover, a subtractor is used to subtract the value contained in the NEXT TIME*

REG from the value held in the CLOCK REG whenever a process have stopped executing and a next process is ready to run as indicated by the VALID TIME FLAG. The result of this subtraction determines the value of TIME REQUEST signal, column 9, lines 1 to 11. Essentially, May has a timer system that causes the execution of the next process on the list whenever the reload value, as defined by the applicant, counts down to 0. So this is taken to mean the equivalent of the timer being arranged and configured to be set for a time out at each of a series of reload values, each reload value being equal to a number of time increments until a next event in the table.)

Since all elements of claim 1 are met by the specifications of May, claim 1 is rejected.

As per **claim 2**, May teaches **wherein the events further includes a deadline for each process of the preselected set of processes; based on a time out of the timer, stopping execution of an executing process regardless of whether the process has stopped execution normally, each process stopping execution according to the corresponding deadline (column 3, lines 22 to 30).**

As per **claim 3**, May teaches **wherein if one process starts execution while another process is executing, preempting the process already executing**

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(achieved by procedures including *TimeSlice*, *InsertInTimerList*.; column 20, lines 28 to 40).

As per **claim 4**, May teaches wherein each process comprises one of a task and an ISR. (The Examiner notes the following: a task is the equivalent of a process, and an interrupt service routine, ISR, is an example of a task. Since the disclosure of May teaches the method of claim 1 for scheduling execution of processes, which includes to mean tasks and ISR, claim 4 is rejected because May anticipates it.)

As per **claim 5**, May teaches wherein when a process comprises an ISR, upon execution of the ISR, providing an enable time. (The examiner has taken the enable time to mean either the start time of a new, never have been executed process or re-enabled/rescheduled/re-start time of a process that did not get finished executing entirely the first time around. Since May teaches methods of rescheduling of a process column 20, lines 60 to 65, claim 5 is clearly anticipated by May.)

As per **claim 6**, May teaches the further step of disabling the ISR after execution; and enabling the ISR upon expiration of the enable time. (The Examiner notes that an ISR is an example of a task or a process. Thus disabling the ISR and enabling the ISR is the equivalent of stopping execution of an executing process according to the deadline, as already claimed in claim 2, and starting the process based

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on time out of the timer, as already claimed in claim 1. Because May already anticipates claim 1 and claim 2, claim 6 is anticipated by May as well.)

As per **claim 7**, the Examiner notes that it is a system claim, which contains all the instructions to perform the method steps of claim 1. Therefore, it is rejected because it is clearly anticipated by May.

As per **claim 8**, the Examiner notes that it is a system claim, which contains all the instructions to perform the method steps of claim 2. Therefore, it is rejected because it is clearly anticipated by May.

As per **claim 9**, the Examiner notes that it is a system claim, which contains all the instructions to perform the method steps of claim 4. Therefore, it is rejected because it is clearly anticipated by May.

As per **claim 10**, the Examiner notes that it is a system claim, which contains all the instructions to perform the method steps of claim 5 and claim 6. Therefore, it is rejected because it is clearly anticipated by May.

As per **claim 11**, May teaches a method for scheduling one or more processes comprising the steps of:

providing a timer (Figure 1, 9);

starting a plurality of processes based on a time out of the timer, each process starting execution according to a start time specified in a time table (column 19, lines 1 to 5);

if one of the processes starts execution while another process is executing, preempting the process already executing (column 20, lines 29 to 40);

if one of the processes has been preempted and the process that preempted the process stops execution, resuming the process that has been preempted (achieved by procedures such as TimeSlice, InsertInTimerList, etc.; column 20, lines 28 to 40);

and based on a time out of the timer, stopping execution of the processes regardless of whether the process has stopped execution normally, each process stopping execution according to a deadline specified in the time table (column 3, lines 22 to 30);

setting the timer for a time out at each of a series of reload values, each reload value being equal to a number of time increments until a next one of a start time and deadline in the time table (line 67 of column 4 to line 2 of column 5; please see explanation for claim 1 rejection).

Therefore claim 11 rejected because it is clearly anticipated by May.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 12 through 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. May in view of Rajaraman et al. (hereafter Rajaraman), U.S. Patent No. 5,838,957.

May teaches

Claim 12 and claim 13: a method for scheduling one or more processes comprising the steps of providing a timer (Figure 1, 9);

starting a plurality of processes based on a time out of the timer, each process starting execution according to a start time specified in a time table (column 19, lines 1 to 5);

stopping execution of the processes regardless of whether the process has stopped execution normally, each process stopping execution according to a deadline specified in the time table (column 3, lines 22 to 30);

setting the timer for a time out at each of a series of reload values, each reload value being equal to a number of time increments until a next start time in the time table (column 9, lines 1 to 11; see detailed explanation for corresponding limitations in claim 1, under Claim Rejection, 35 USC 102);

setting the timer for a time out at each of a series of reload values, each reload value being equal to a number of time increments until a next deadline in the time table (column 3, lines 22 to 30; see detailed explanation for corresponding limitations in claim 1, under Claim Rejection, 35 USC 102).

Claim 13: each process comprises one of a task and an ISR, and comprising the further steps of when a process comprises an ISR, upon execution of the ISR, providing an enable time, disabling the ISR after execution; and enabling the ISR upon expiration of the enable time, the step of enabling being performed by setting a timer to time out after a reload value equal to the enable time. (The Examiner notes the following: a task is the equivalent of a process, and an interrupt service routine, ISR, is an example of a task. The disclosure of May teaches the method of claim 1 and claim 2 for enabling and disabling the execution of processes, which includes to mean ISR.)

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May does not teach

Claim 12 and Claim 13: the usage of a plurality of timers where the first timer is set for a time out at each of a series of reload values, each reload value being equal to a number of time increments until a next start time in the time table;

the usage of a plurality of timers where the second timer is set for a time out at each of a series of reload values, each reload value being equal to a number of time increments until a next deadline in the time table;

Claim 13: The usages of a plurality of timers where the third timer is set to time out after a reload value equal to the enable time.

Rajaraman teaches **the usage of a plurality of timers that is set to expire at different times for the purpose of indicating the occurrences of different events** (*abstract; column 1, lines 5 to 12; column 1, lines 44 to 60*).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have modified the invention of May with:

Claim 12 and Claim 13: setting a plurality of three timers to expire at different times, as taught by Rajaraman, because the first timer enables the indication of the start of new processes;

Setting a plurality of three timers to expire at different times, as taught by Rajaraman, because the second timer enables the indication of the end of current processes; and

Claim 13: setting a plurality of three timers to expired at different times, as taught by Rajaraman, because the third timer enables the indication of the start of an ISR.

The examiner notes that

Claim 14: is a system claim, which contains all the instructions to perform the method steps of claim 12.

Claim 15: is a system claim, which contains all the instructions to perform the method steps of claim 13.

Therefore, claims 12 to 15 are rejected based on reasons above.

Conclusion

The prior art made of record and not relied upon are considered pertinent to applicant's disclosure:

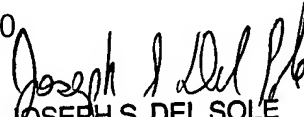
U.S. Patent No. 5491815: Method and Device for Controlling Timers Associated with Multiple Users In a Data Processing System, Basso; Claude et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MengYao Zhe whose telephone number is 571-272-6946. The examiner can normally be reached on Monday Through Friday, 7:30 - 5:00 EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on 571-272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


JOSEPH S. DEL SOLE
PRIMARY EXAMINER
1/30/07